

**Summary Highlights of NRC/DOE Technical Exchange and  
Management Meeting on  
DOE's Key Technical Issue Agreement Item Planning Strategy  
and Discussion of Fiscal Year 2002 Agreements**

April 15-16, 2002  
Las Vegas, Nevada

Introduction and Objectives

This Technical Exchange and Management Meeting to discuss the Key Technical Issues (KTIs) is one in a series of meetings related to the U.S. Nuclear Regulatory Commission (NRC) and U.S. Department of Energy (DOE) issue resolution process. Consistent with NRC regulations on precicensing consultations and a 1992 agreement with the DOE, staff-level resolution can be achieved during precicensing consultation. The purpose of issue resolution is to assure that sufficient information is available on an issue to enable the NRC to docket a proposed license application. Resolution at the staff level does not preclude an issue being raised and considered during the licensing proceedings, nor does it prejudge what the NRC staff evaluation of that issue will be after its licensing review. Issue resolution at the staff level, during precicensing, is achieved when the staff has no further questions or comments at a point in time regarding how the DOE is addressing an issue. Pertinent additional information (e.g., changes in design parameters) could raise new questions or comments regarding a previously resolved issue.

Issues are "closed" if the DOE approach and available information acceptably address staff questions such that no information beyond what is currently available will likely be required for regulatory decision making at the time of any initial license application. Issues are "closed-pending" if the NRC staff has confidence that the DOE proposed approach, together with the DOE agreement to provide the NRC with additional information (through specified testing, analysis, etc.) acceptably addresses the NRC's questions such that no information beyond that provided, or agreed to, will likely be required at the time of initial license application. Issues are "open" if the NRC has identified questions regarding the DOE approach or information, and the DOE has not yet acceptably addressed the questions or agreed to provide the necessary additional information in a potential license application.

The objective of this meeting was to discuss DOE's KTI Agreement Item Planning Strategy and the KTI agreements DOE plans to address in Fiscal Year (FY) 2002. No new agreements were reached at this meeting, however, the due dates and/or documentation method for several agreements were changed, one agreement was modified, and two were closed as discussed below. A table identifying the KTI agreement, the new due date, and related comments, if any, is provided as Attachment 1. The modification of Igneous Activity Agreement 2.17 is provided as Attachment 2. The agenda and the attendance list are provided as Attachments 3 and 4, respectively. Copies of the presenters' slides are provided as Attachment 5. Highlights from the Technical Exchange and Management Meeting are discussed below.

## Summary of Meeting

### **1) Overview of KTI Issue Resolution Status**

NRC provided an overview of the status of issue resolution. The NRC stated that of the 293 DOE/NRC KTI agreements, 38 have been formally closed and an additional 15 are under NRC review. The NRC noted that this meeting is the first of two meetings in which all the agreements will be discussed. During this meeting, DOE provided information pertaining to the agreements which it plans to address during the remainder of FY 2002. A meeting to discuss the FY 2003 and beyond agreements was tentatively scheduled for June 2002.

NRC stated that it does not plan to formally review or endorse the DOE planning strategy, but that it would like to understand the process DOE used to determine the priority and work scope for addressing the agreements. The NRC further stated that it believes the KTI agreements are the vehicle for future issue resolution discussions, that it is interested in having additional technical exchanges and Appendix 7 meetings to discuss the specific key technical issues, and that it believes continued discussions between the NRC and DOE technical leads is warranted.

DOE representatives expressed plans to address all the agreements prior to submitting a license application, although some information pertaining to a few agreements may be provided after the license application is submitted. DOE stated that it is reviewing the Yucca Mountain Review Plan closely, and plans to provide comments within the 90 day comment period. DOE further stated that it agreed with the NRC that continued discussions between the NRC and DOE technical leads for specific key technical issues is warranted.

### **2) DOE's KTI Agreement Item Planning Strategy**

DOE discussed its KTI Planning Strategy in a presentation given by Mark Wisenburg. DOE provided a summary of the KTI agreements and stated that it agreed with the NRC regarding the completion of 38 agreements. DOE then presented an overview of its KTI Planning Strategy. DOE described a four step process to obtain a coarse binning of disposition methods for each of the 293 agreements. DOE then provided the definition for each bin, the schedule for addressing the agreements, and a method for documenting the work scope needed to address the agreements. The NRC noted that it would not challenge the binning of the agreements, but was more interested in how DOE planned to address the NRC's information needs for each agreement.

The NRC asked whether DOE used risk information to prioritize the agreements. DOE stated that risk information was used in part, but noted that other factors contributed to the final schedule. The NRC suggested that risk information be used as much as possible to ensure that the most risk significant items get addressed early in the issue resolution process.

DOE discussed the overall partitioning of the KTI agreements by schedule and disposition bin. DOE stated that it plans to address all the agreements by the time of license application and that based on current plans, it believes that final information pertaining to ten agreements would be provided after license application. The NRC agreed that some information could be provided after license application, but DOE would need to provide enough information in the

license application for the NRC staff to accept the license application for review. DOE then discussed the overall partitioning by disposition bin.

### **3) Fiscal Year 2002 Agreements**

DOE then discussed a table (see table titled "Milestone FY02 - Agreement Items") which included the agreements it plans to address in the remainder of FY 2002. The DOE table included the agreement statement, schedule for the agreements, bin deposition, and description of the DOE bases for the binning. DOE and NRC discussed all the agreements on the agenda, noting several specific agreements that would be discussed in more detail later in the meeting. For approximately two thirds of the agreements, DOE plans to provide the information as called for in the agreements, either in the documents named in the agreements or in different documents which meet the intent of the agreements. NRC stated that this was acceptable and an updated schedule was provided by DOE. NRC comments regarding the agreements are included in Attachment 1, along with the revised DOE schedule. The NRC and DOE also discussed several specific agreements in more detail, as discussed below.

Total System Performance Assessment and Integration (TSPAI) Agreement 3.19 - DOE stated that it planned to provide sensitivity studies, in part, to address this agreement. NRC discussed several questions with regard to the DOE approach. In response, DOE stated that it plans to: evaluate the combined effects of uncertainty in its analyses; look at intermediate values which might lead to less conservative results; and evaluate ways to ensure that the waste package would not mask barrier performance. NRC stated that it would need some explanation from DOE on the appropriateness of the use of the model and the technical basis for why the sensitivity studies are acceptable.

TSPAI Agreement 3.22 - DOE stated that it planned to provide sensitivity studies, in part, to address this agreement. NRC stated that this approach was acceptable and that it would review the information when submitted.

Unsaturated and Saturated Flow Under Isothermal Conditions (USFIC) Agreement 5.09 - DOE stated that it would provide the requested information. NRC questioned what kind of visual representations would be included in the report. DOE discussed the visual representations and both the NRC and DOE agreed that additional discussions and possibly a site visit may be worthwhile.

USFIC Agreement 3.01 - DOE stated that it planned to provide sensitivity studies, in part, to address this agreement. NRC stated that it had the same comments as in TSPAI Agreement 3.19. The NRC also questioned whether DOE was looking at risk dilution. DOE stated that it was.

USFIC Agreement 3.02 - DOE stated that it planned to provide sensitivity studies, in part, to address this agreement. NRC questioned whether DOE was going to include documentation for the Pagany Wash and Alcove 1 tests. DOE stated that it was not planning to include the information and that the sensitivity studies are expected to show that the testing information was not needed.

TSPAI Agreement 2.05 - DOE stated that it had submitted the information pertaining to the agreement in a letter dated April 5, 2002. NRC stated that it had received the information and that it was under review.

TSPAI Agreement 2.06 - DOE stated that it would like the NRC to review whether this agreement could be closed based on its response to TSPAI Agreement 2.05. NRC stated that it would review the information DOE submitted on April 5, 2002, and evaluate whether the information adequately addressed both agreements. NRC stated that it would list TSPAI Agreement 2.06 as "Received."

TSPAI Agreement 3.38, 3.39, 3.40, 3.41, and 4.01 - DOE stated that it would submit a process and approach guidelines document in May 2002 to address these five agreements. DOE stated that some of the NRC comments regarding these agreements would be included in the Methods and Approach document which is scheduled to be provided to the NRC in September 2002. However, DOE stated that the information in the guidelines document should satisfactorily resolve all five agreements. NRC stated that it would review the guidelines document as it pertained to all five agreements and would provide DOE the results in two or three months. NRC noted that the intent of the agreements was more outcome driven, but that it would determine, based on its review, whether the agreements were adequately addressed. DOE noted that if, after the NRC review is complete, consolidation of the agreements is appropriate, it would be willing to discuss it. The NRC questioned whether the implementation information would be available to NRC at least six months prior to a potential license application. DOE confirmed that it plans to have supporting documentation available at that time. There was also some discussion on the need to update the Final Environmental Impact Statement as new information becomes available or as design changes are made.

Structural Deformation and Seismicity (SDS) Agreement 3.03 - DOE stated that it would address the eight points in the NRC's letter of August 3, 2001, in its submittal for this agreement. NRC questioned how reviewers would know that the analysis and model report (AMR) is not up to date since DOE will provide information in a letter report. DOE stated that separate documentation was developed and that the AMR was not being updated. DOE stated that this letter report would just address the information requested in the NRC letter. NRC asked where the additional mapping to the south of the repository would be documented. DOE stated that the information would be made available upon receipt from the U.S. Geological Survey (USGS).

Thermal Effects on Flow (TEF) Agreement 2.03 - NRC stated that it had reviewed the three AMRs already provided for this agreement and did not have any questions at this time. The NRC stated that the intent of the remaining document for this agreement was to show the implementation of the information. NRC stated that keeping the agreement open just to track implementation was not needed and this agreement could be listed as "Complete." The NRC noted that it would continue to review DOE documents as they pertain to this agreement.

TEF Agreement 2.06 - NRC stated that this agreement was listed as complete in a NRC letter dated August 6, 2001, therefore no additional information is needed at this time.

Container Life and Source Term (CLST) Agreement 5.06 and 5.07 - DOE described the approach it was using in the criticality area. DOE stated that it expected to screen criticality out

on the basis of probability and that it would follow the methodology it outlined in its criticality topical report. NRC questioned why a different methodology was used in the Technical Update Impact Letter report and whether the methodology DOE was using had changed since DOE provided Revision 1 to the Topical Report in February 2001. DOE stated that the NRC should not review the Technical Update Impact Letter report and that the NRC should continue to review the Topical Report. The Technical Update Impact Letter report documented a scoping calculation for information purposes only and not for technical review. DOE stated that they are interested in receiving the NRC comments on the Topical Report. NRC stated that the meeting to discuss criticality, as well as some issues within the CLST KTI is needed and proposed a May 14-15, 2002, date. DOE stated that it would work with the NRC to set up the meeting.

CLST Agreement 1.05, 1.06, and 1.07 - DOE discussed its revised approach and stated that it intends to use the five-year exposed samples testing for Alloy 22 results to address these agreements. NRC questioned whether related agreements (CLST.1.03 and 1.04; TSPAI.3.01, 3.04, and 3.05) would be discussed accordingly in the DOE submittal. DOE stated that they would be. DOE stated that based on the information to date, general corrosion of the waste packages is not a major issue. NRC noted that it believed this was true for only low temperatures, information to make that determination for high temperatures was not available. DOE stated it would provide justification for testing methodology changes in the letter report.

Igneous Activity (IA) Agreement 1.02 - NRC stated that prior to DOE submitting information pertaining to this agreement, that it recommended two meetings be set up. The first meeting would discuss the new aeromagnetic data, the second meeting would discuss the interpretation of the data. NRC proposed July 9-10, 2002, as a tentative date for the first meeting. DOE stated that it would work with the NRC to formalize the date.

IA Agreement 2.09 - DOE stated that they would provide the information called for in the agreement in a letter report which would summarize the results of its study. NRC stated that it was concerned about the use of average data, which would not factor in thermal buoyancy, which may underestimate transport. DOE stated that it would provide the justification for the use of average data, or whatever data is used, in the letter report.

IA Agreement 2.13 - NRC and DOE discussed whether this agreement could be combined with IA Agreement 2.17. NRC proposed adding one additional sentence to IA Agreement 2.17, DOE stated that this was acceptable to them. As a result of this modification to IA Agreement 2.17, IA Agreement 2.13 is listed as "Complete." Attachment 2 provides the rewrite of IA Agreement 2.17.

#### **4) Public Comments**

Mr. Leon Reiter, Nuclear Waste Technical Review Board staff, questioned DOE's plans to prepare its safety case. His questions were related to the performance assessment, multiple barriers, and groundwater infiltration. DOE representatives stated that the safety case is being prepared and will be presented in its Safety Analysis Report (SAR). DOE also discussed resiliency of the system and defense in depth as it relates to system capability, groundwater transport, and dose.

Mr. John Kessler, Electric Power Research Institute, stated that clarification from the NRC would be helpful on those agreement items involving the use of risk information. NRC stated that it would expect to have continuing discussions with DOE on these matters and provide feedback as materials are submitted providing risk bases.

Ms. Susan Lynch, State of Nevada, asked if dates for upcoming meetings could be provided sooner. The NRC stated that it was currently implementing a process to provide early notification to stakeholders, via e-mail, that meeting dates had been formally established.

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